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1 SPOTS track: Channel allocation strategies for wireless sensors statically deployed   ■
in multipath environments
Jake Galbreath, Jeff Frolik
April 2006 **Proceedings of the fifth international conference on Information processing in sensor networks IPSN '06**
Publisher: ACM Press
Full text available: 🗎 pdf(450.14 KB)   Additional Information: full citation, abstract, references, index terms

This work presents several channel allocation strategies that utilize *in situ* fading measurements obtained from node RSSI data. The strategies take advantage of current frequency agile radio designs and consider both single and multiple frequency allocations along with nodal connectivity requirements. The techniques are demonstrated on real-world data for an in-vehicle wireless sensor application. The hardware platform utilized is MicroStrain's V-Link wireless sensors along with a MicroSt ...

Keywords: link optimization, multipath fading, wireless sensor networks

2 Power control: Assignment of dynamic transmission range based on estimation of   ■
vehicle density
Maen M. Artimy, William Robertson, William J. Phillips
September 2005 **Proceedings of the 2nd ACM international workshop on Vehicular ad hoc networks VANET '05**
Publisher: ACM Press
Full text available: 🗎 pdf(297.65 KB)   Additional Information: full citation, abstract, references, index terms

Vehicular Ad Hoc Networks (VANET) have several characteristics that distinguish them from other ad hoc networks. Among those is the rapid change in topology due to traffic jams, which also disturbs the homogenous distribution of vehicles on the road. For this reason, a dynamic transmission range is more effective in maintaining connectivity while minimizing the adverse effects of a high transmission power.We provide a relationship that allows vehicles to estimate the local density and distinguis ...

Keywords: VANET, ad hoc networks, connectivity, density estimation, inter-vehicle communications, transmission range

3   ■
Multihop networks: An architecture study of infrastructure-based vehicular networks

Hao Wu, Richard Fujimoto, Michael Hunter, Randall Guensler
October 2005 **Proceedings of the 8th ACM international symposium on Modeling, analysis and simulation of wireless and mobile systems MSWiM '05**
Publisher: ACM Press
Full text available: pdf(246.58 KB)   Additional Information: full citation, abstract, references, index terms

There are various ways to organize and connect in-vehicle computing systems by exploiting existing wireless technologies. It is desired to provide a wireless infrastructure for vehicles (e.g., offering reliable broadband channels, transportation related services and Internet access). In this paper we identify several design options for infrastructure-based vehicular networks and evaluate these designs in a realistic vehicular environment.

Keywords: WLAN, WWAN, vehicular network

4   Challenges for efficient communication in underwater acoustic sensor networks
Ian F. Akyildiz, Dario Pompili, Tommaso Melodia
July 2004   **ACM SIGBED Review**, Volume 1 Issue 2
Publisher: ACM Press

Full text available: pdf(96.26 KB)   Additional Information: full citation, abstract, references, citings, index terms

Ocean bottom sensor nodes can be used for oceanographic data collection, pollution monitoring, offshore exploration and tactical surveillance applications. Moreover, Unmanned or Autonomous Underwater Vehicles (UUVs, AUVs), equipped with sensors, will find application in exploration of natural undersea resources and gathering of scientific data in collaborative monitoring missions. Underwater acoustic networking is the enabling technology for these applications. Underwater Networks consist of a v ...

5   Context and Location: Intelligent pervasive middleware for context-based and localized telematics services
Chatschik Bisdikian, Isaac Boamah, Paul Castro, Archan Misra, Jim Rubas, Nicolas Villoutreix, Danny Yeh, Vladimir Rasin, Henry Huang, Craig Simonds
September 2002 **Proceedings of the 2nd international workshop on Mobile commerce WMC '02**
Publisher: ACM Press
Full text available: pdf(565.14 KB)   Additional Information: full citation, abstract, references, index terms

Telematics is arguably the next-wave in mobile computing: with most cars already equipped with multiple embedded computing platforms, we shall witness the development of a variety of mobile services and applications with significant commercial potential. Telematics will only become a commercial reality when the underlying architecture is able to address significant concerns related to the security and privacy of telematics data, and is able to provide context information from and to a large numb ...

Keywords: pervasive computing, telematics

6   Routing: High-fidelity application-centric evaluation framework for vehicular networks
Yi Yang, Maneesh Varshney, Shrinivas Mohan, Rajive Bagrodia
September 2007 **Proceedings of the fourth ACM international workshop on Vehicular ad hoc networks VANET '07**
Publisher: ACM Press
Full text available: pdf(1.37 MB)   Additional Information: full citation, abstract, references, index terms

This paper proposes an evaluation framework for vehicular networks to achieve accurate, scalable, flexible and repeatable performance studies through the utilization of a hybrid

emulation testbed and incorporation of high fidelity protocol and environment models. The proposed framework not only addresses the unique challenges of vehicular networks but also enables new types of network analyses via the capability of conducting application-centric evaluation. Compared to traditional network-cen ...

Keywords: application centric, emulation, performance evaluation, vehicular networks

7   W2-C: general symposium: A wireless test bed for mobile 802.11 and beyond
Michael Hempel, Hamid Sharif, Ting Zhou, Puttipong Mahasukhon
July 2006   **Proceedings of the 2006 international conference on Wireless communications and mobile computing IWCMC '06**
Publisher: ACM Press
Full text available: pdf(1.69 MB)   Additional Information: full citation, abstract, references, index terms

In this paper, we present our approach of establishing a wireless test bed as a part of our collaborations with the Federal Railroad Administration (FRA) for studying the performance of current and upcoming wireless technologies in a mobile railroad environment. The focus is on studying the impact of mobility on the wireless system throughput for moving trains with different velocities. We describe details of our test bed design including selection of the location, equipment as well as system to ...

Keywords: 802.16, IEEE 802.11b performance, mobility, test bed, wireless, wireless in railroads

8   Physical layer driven protocol and algorithm design for energy-efficient wireless sensor networks
Eugene Shih, Seong-Hwan Cho, Nathan Ickes, Rex Min, Amit Sinha, Alice Wang, Anantha Chandrakasan
July 2001   **Proceedings of the 7th annual international conference on Mobile computing and networking MobiCom '01**
Publisher: ACM Press
Full text available: pdf(782.22 KB)   Additional Information: full citation, abstract, references, citings, index terms

The potential for collaborative, robust networks of microsensors has attracted a great deal of research attention. For the most part, this is due to the compelling applications that will be enabled once wireless microsensor networks are in place; location-sensing, environmental sensing, medical monitoring and similar applications are all gaining interest. However, wireless microsensor networks pose numerous design challenges. For applications requiring long-term, robust sensing, such as milit ...

9   Effective use of wireless data communications
Geoffrey Engerman, Lee Kearney
February 1998 **International Journal of Network Management**, Volume 8 Issue 1
Publisher: John Wiley & Sons, Inc.
Full text available: pdf(134.60 KB)   Additional Information: full citation, abstract, index terms

This article summarizes the various wireless data network technologies and describes the underlying data communication elements necessary for effective application deployment. © 1998 John Wiley & Sons, Ltd.

10   Virtual reality/3D visualization: manufacturing simulation and product development: Integrating operations simulation results with an immersive virtual reality environment
Gordon D. Rehn, Marco Lemessi, Judy M. Vance, Denis V. Dorozhkin

December 2004 **Proceedings of the 36th conference on Winter simulation WSC '04**
Publisher: Winter Simulation Conference
Full text available: 📄 pdf(366.42 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>

> This paper demonstrates the utilization of immersive virtual reality environments in the investigation of operations simulation results. The authors outline the benefits offered by virtual reality over the traditional two-dimensional computer interfaces, such as the monitor, keyboard and mouse. The paper describes the state of the art in the area of operations simulation and the implementation details and functionality of the program developed as a result of this research. The experience of usin ...

11 <u>Invited papers: State-of-the-art in protocol research for underwater acoustic sensor networks</u> ■
Ian F. Akyildiz, Dario Pompili, Tommaso Melodia
September 2006 **Proceedings of the 1st ACM international workshop on Underwater networks WUWNet '06**
Publisher: ACM Press
Full text available: 📄 pdf(402.80 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

> In this paper, architectures for two-dimensional and three-dimensional underwater sensor networks are discussed. A detailed overview on the current solutions for medium access control, network, and transport layer protocols are given and open research issues are discussed.
>
> **Keywords**: acoustic networks, underwater sensor networks

12 <u>An adaptive wireless local area network protocol that improves throughput via adaptive control of direct sequence spread spectrum parameters</u> ■
Barry E. Mullins, Nathaniel J. Davis, Scott F. Midkiff
September 1997 **ACM SIGMOBILE Mobile Computing and Communications Review,**
Volume 1 Issue 3
Publisher: ACM Press
Full text available: 📄 pdf(1.71 MB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>

> We develop and analyze an elegant, opportunistic medium access control (MAC) protocol based on the proposed MAC standard for wireless local area networks (WLAN)---IEEE 802.11. Our adaptation of 802.11 is called CATER (Code Adapts To Enhance Reliability) and allows communicating stations to reconfigure their transceivers to use a longer pseudo-noise (PN) code when retransmissions are unsuccessful over a degraded channel. Results show that our protocol continues to function, permitting up to 14 pe ...

13 <u>Self-configuring localization systems: Design and Experimental Evaluation</u> ■
Nirupama Bulusu, John Heidemann, Deborah Estrin, Tommy Tran
February 2004 **ACM Transactions on Embedded Computing Systems (TECS),** Volume 3
Issue 1
Publisher: ACM Press
Full text available: 📄 pdf(261.39 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

> Embedded networked sensors promise to revolutionize the way we interact with our physical environment and require scalable, ad hoc deployable and energy-efficient node localization/positioning.This paper describes the motivation, design, implementation, and experimental evaluation (on sharply resource-constrained devices) of a *self-configuring* localization system using radio beacons. We identify beacon *density* as an important parameter in determining localization quality, which sat ...
>
> **Keywords**: Location, localization, self-configuration, sensor networks

14 Low-power direct-sequence spread-spectrum modem architecture for distributed wireless sensor networks
Charles Chien, Igor Elgorriaga, Charles McConaghy
August 2001 **Proceedings of the 2001 international symposium on Low power electronics and design ISLPED '01**
Publisher: ACM Press
Full text available: 📄 pdf(203.96 KB)   Additional Information: full citation, references, citings, index terms

Keywords: direct sequence, low power, modem, sensor, spread spectrum

15 Poster session 2: human appearance and activity surveillance: A multimodal approach for dynamic event capture of vehicles and pedestrians
Jeffrey Ploetner, Mohan M. Trivedi
October 2006 **Proceedings of the 4th ACM international workshop on Video surveillance and sensor networks VSSN '06**
Publisher: ACM Press
Full text available: 📄 pdf(906.05 KB)   Additional Information: full citation, abstract, references, index terms

This paper presents an overview of a novel multimodal system being developed at UC San Diego for vehicle and pedestrian detection, event capture, and analysis. A Distributed Multimodal Array (DiMMA) framework is presented for sensory data acquisition, processing, analysis, fusion, and active control mechanisms needed to recognize objects, events, and activities which have multi-modal signatures. Current sensing modalities being researched include video, audio, seismic, laser ranging, magnetic, a ...

Keywords: cross-cueing, event-based triggering, multimodal vehicle and pedestrian detection and classification, sensor data fusion

16 Methodologies and tools: Parallel and distributed simulation of wireless vehicular ad hoc networks
Luciano Bononi, Marco Di Felice, Marco Bertini, Emidio Croci
October 2006 **Proceedings of the 9th ACM international symposium on Modeling analysis and simulation of wireless and mobile systems MSWiM '06**
Publisher: ACM Press
Full text available: 📄 pdf(504.94 KB)   Additional Information: full citation, abstract, references, index terms

In this paper, we present a novel solution for the fine-grained parallel and distributed simulation of Vehicular ad hoc networks' (VANETs) services and applications, based on vehicular traffic mobility and wireless IEEE 802.11-standard models. A Mobile Wireless Vehicular Environment Simulation (MoVES) framework supports dynamic partition of geographic areas and dynamic entity mapping of the modeled scenarios over parallel and distributed simulation platforms. This could be a viable solution to e ...

Keywords: intelligent transportation systems, parallel and distributed simulation, wireless vehicular ad hoc networks

17 Simulation and modeling: An integrated mobility and traffic model for vehicular wireless networks
David R. Choffnes, Fabián E. Bustamante

September 2005 **Proceedings of the 2nd ACM international workshop on Vehicular ad hoc networks VANET '05**

Publisher: ACM Press

Full text available: pdf(280.71 KB)   Additional Information: full citation, abstract, references, index terms

Ad-hoc wireless communication among highly dynamic, mobile nodes in a urban network is a critical capability for a wide range of important applications including automated vehicles, real-time traffic monitoring and vehicular safety applications. When evaluating application performance in simulation, a realistic mobility model for vehicular ad-hoc networks (VANETs) is critical for accurate results. This paper analyzes ad-hoc wireless network performance in a vehicular network in which nodes move ...

18 Trust beyond security: an expanded trust model

Lance J. Hoffman, Kim Lawson-Jenkins, Jeremy Blum

July 2006 **Communications of the ACM**, Volume 49 Issue 7

Publisher: ACM Press

Full text available: pdf(514.54 KB)   Additional Information: full citation, abstract, references, index terms
html(32.55 KB)

Developing an improved trust model and related metrics for distributed computer-based systems that will be useful immediately and resilient to changing technology.

19 Sensor networks II: Routing algorithms for delay-insensitive and delay-sensitive applications in underwater sensor networks

Dario Pompili, Tommaso Melodia, Ian F. Akyildiz

September 2006 **Proceedings of the 12th annual international conference on Mobile computing and networking MobiCom '06**

Publisher: ACM Press

Full text available: pdf(492.59 KB)   Additional Information: full citation, abstract, references, cited by, index terms

Underwater sensor networks consist of sensors and vehicles deployed to perform collaborative monitoring tasks over a given region. Underwater sensor networks will find applications in oceano-graphic data collection, pollution monitoring, offshore exploration, disaster prevention, assisted navigation, tactical surveillance, and mine reconnaissance. Underwater acoustic networking is the enabling technology for these applications. In this paper, an architecture for three-dimensional underwater sens ...

Keywords: routing algorithms, underwater sensor networks

20 The SpectrumWare approach to wireless signal processing

David L. Tennenhouse, Vanu G. Bose

March 1996 **Wireless Networks**, Volume 2 Issue 1

Publisher: Kluwer Academic Publishers

Full text available: pdf(1.18 MB)   Additional Information: full citation, abstract, references, citings, index terms

The SpectrumWare project is applying a software oriented approach to wireless communication and distributed signal processing. Advances in processor and analog-to-digital conversion technology have made it possible to implement virtual radios that directly sample wide bands of the RF spectrum and process these samples in application software. The elimination of dedicated hardware introduces tremendous flexibility into a wireless communication system. Our approach goes further than the softw ...

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· **1 Safety: Cooperative collision warning using dedicated short range wireless**
◈ **communications**   ▭
    Tamer ElBatt, Siddhartha K. Goel, Gavin Holland, Hariharan Krishnan, Jayendra Parikh
    September 2006 **Proceedings of the 3rd international workshop on Vehicular ad hoc**
                    networks VANET '06
    Publisher: ACM Press
    Full text available: 📄 pdf(507.06 KB)   Additional Information: full citation, abstract, references, index terms

    The emergence of the 802.11a-based Dedicated Short Range Communications (DSRC)
    standard and advances in mobile ad hoc networking create ample opportunity for
    supporting delay-critical vehicular safety applications in a secure, resource-efficient, and
    reliable manner. In this paper, we focus on the suitability of DSRC for a class of vehicular
    safety applications called Cooperative Collision Warning (CCW), where vehicles
    periodically broadcast short messages for the purposes of driver situational ...

    Keywords: DSRC, IEEE 802.11p, broadcast rate, metrics, safety, simulation,
    transmission range, vehicular communications

2 SPOTS track: Channel allocation strategies for wireless sensors statically deployed   ▭
◈ **in multipath environments**
    Jake Galbreath, Jeff Frolik
    April 2006 **Proceedings of the fifth international conference on Information**
               processing in sensor networks IPSN '06
    Publisher: ACM Press
    Full text available: 📄 pdf(450.14 KB)   Additional Information: full citation, abstract, references, index terms

    This work presents several channel allocation strategies that utilize *in situ* fading
    measurements obtained from node RSSI data. The strategies take advantage of current
    frequency agile radio designs and consider both single and multiple frequency allocations
    along with nodal connectivity requirements. The techniques are demonstrated on real-
    world data for an in-vehicle wireless sensor application. The hardware platform utilized is
    MicroStrain's V-Link wireless sensors along with a MicroSt ...

    Keywords: link optimization, multipath fading, wireless sensor networks

3   ▭
    Considering the physical layer: Wireless sensors on rotating structures: performance

evaluation and radio link characterization
Kuang-Ching Wang, Lei Tang, Yong Huang
September 2007 **Proceedings of the the second ACM international workshop on Wireless network testbeds, experimental evaluation and characterization WinTECH '07**
Publisher: ACM Press
Full text available: pdf(561.14 KB)   Additional Information: full citation, abstract, references, index terms

Wireless sensors capable of sensing, processing, and wireless communication can be useful for many monitoring purposes. Wireless sensor network testbeds to date have not considered sensors placed on fast moving structures. Fast rotating structures are commonly found in mechanical and vehicular systems, and the challenges of using wireless sensors on such structures have not been adequately addressed. The paper presents a testbed built of wireless sensors affixed to the spindle of a computer c ...

Keywords: IEEE 802.15.4, testbed, wireless sensor network

4 Improving energy efficiency of centrally controlled wireless data networks
John A. Stine, Gustavo De Veciana
November 2002 **Wireless Networks**, Volume 8 Issue 6
Publisher: Kluwer Academic Publishers
Full text available: pdf(900.34 KB)   Additional Information: full citation, abstract, references, citings, index terms

Wireless network access protocols can assist nodes to conserve energy by identifying when they can enter low energy states. The goal is to put all nodes not involved in a transmission into the doze state. However, in doing so, one must tradeoff the energy and other costs associated with the overhead of coordinating dozing with the energy savings of putting nodes to sleep. In this paper, we define three alternative directory protocols that may be used by a central node to coordinate the transmiss ...

Keywords: 802.11 MAC, energy conserving protocol, point coordination function (PCF), power saving, wireless medium access control (MAC), wireless network

5 Platform based design for wireless sensor networks
Alvise Bonivento, Luca P. Carloni, Alberto Sangiovanni-Vincentelli
August 2006 **Mobile Networks and Applications**, Volume 11 Issue 4
Publisher: Kluwer Academic Publishers
Full text available: pdf(1.49 MB)   Additional Information: full citation, abstract, references, citings, index terms

We present a novel methodology for the design of interoperable Wireless Sensor Networks (WSN). The methodology is based on the principles of Platform Based Design (PBD). PBD is a meet-in-the-middle approach where the top-down refinement of a design specification meets with bottom-up characterizations of possible alternative implementations. The design space exploration is performed based on estimates of the performance of the candidate solutions so that the overall design process is considerably ...

Keywords: design automation, platform based design, sensor networks

6 Spatial energy balancing through proactive multipath routing in wireless multihop networks
Seung Jun Baek, Gustavo de Veciana
February 2007 **IEEE/ACM Transactions on Networking (TON)**, Volume 15 Issue 1

Publisher: IEEE Press
Full text available: pdf(875.52 KB)   Additional Information: <u>full citation, abstract, references, index terms</u>

> In this paper, we investigate the use of proactive multipath routing to achieve energy-efficient operation of ad hoc wireless networks. The focus is on optimizing tradeoffs between the energy cost of spreading traffic and the improved spatial balance of energy burdens. We propose a simple scheme for multipath routing based on spatial relationships among nodes. Then, combining stochastic geometric and queueing models, we develop a continuum model for such networks, permitting an evaluation of ...
>
> **Keywords:** Gaussian random field, M/GI/1 queue, sensor networks, shot-noise process, stochastic geometry

7 VANET channel characteristics and safety applications: Performance evaluation of safety applications over DSRC vehicular ad hoc networks
Jijun Yin, Tamer ElBatt, Gavin Yeung, Bo Ryu, Stephen Habermas, Hariharan Krishnan, Timothy Talty
October 2004 **Proceedings of the 1st ACM international workshop on Vehicular ad hoc networks VANET '04**
Publisher: ACM Press

Full text available: pdf(505.89 KB)   Additional Information: <u>full citation, abstract, references, citings, index terms</u>

> In this paper we conduct a feasibility study of delay-critical safety applications over vehicular ad hoc networks based on the emerging dedicated short range communications (DSRC) standard. In particular, we quantify the bit error rate, throughput and latency associated with vehicle collision avoidance applications running on top of mobile ad hoc networks employing the physical and MAC layers of DSRC. Towards this objective, the study goes through two phases. First, we conduct a detailed simulat ...
>
> **Keywords:** DSRC, MANETs, OFDM, bit error rate, intervehicle communications, latency, safety applications, simulation, throughput

8 Advancements in 3D interactive devices for virtual environments
D. Wormell, E. Foxlin
May 2003 **Proceedings of the workshop on Virtual environments 2003 EGVE '03**
Publisher: ACM Press
Full text available: pdf(24.13 MB)   Additional Information: <u>full citation, abstract, references, index terms</u>

> New commercially available interactive 3D tracking devices and systems for use in virtual environments are discussed. InterSense originally introduced the IS-900 scalable-area hybrid tracking system for virtual environments in 1999. In response to customer requests, we have almost completely revamped the system over the past two years. The major changes include a drastic 3-fold reduction in the size and weight of the wearable sensor devices, introduction of wireless tracking capability, a standa ...
>
> **Keywords:** I^{2}C Bus, inertial tracking, motion tracking, tracking in virtual environments, wireless tracking

9 Undergraduate embedded system education at Carnegie Mellon
Philip Koopman, Howie Choset, Rajeev Gandhi, Bruce Krogh, Diana Marculescu, Priya Narasimhan, Joann M. Paul, Ragunathan Rajkumar, Daniel Siewiorek, Asim Smailagic, Peter Steenkiste, Donald E. Thomas, Chenxi Wang

August 2005 **ACM Transactions on Embedded Computing Systems (TECS)**, Volume 4 Issue 3
Publisher: ACM Press
Full text available: pdf(162.46 KB)　　Additional Information: full citation, abstract, references, index terms

> Embedded systems encompass a wide range of applications, technologies, and disciplines, necessitating a broad approach to education. We describe embedded system coursework during the first 4 years of university education (the U.S. undergraduate level). Embedded application curriculum areas include: small and single-microcontroller applications, control systems, distributed embedded control, system-on-chip, networking, embedded PCs, critical systems, robotics, computer peripherals, wireless data ...

> **Keywords**: Embedded systems education, curriculum

10 Call admission policies based on calculated power control setpoints in SIR-based power-controlled DS-CDMA cellular networks
Derong Liu, Yi Zhang, Sanqing Hu
July 2004 **Wireless Networks**, Volume 10 Issue 4
Publisher: Kluwer Academic Publishers
Full text available: pdf(225.46 KB)　　Additional Information: full citation, abstract, references, index terms

> In this paper, we develop call admission control algorithms for SIR-based power-controlled DS-CDMA cellular networks. We consider networks that handle both voice and data services. When a new call (or a handoff call) arrives at a base station requesting for admission, our algorithms will calculate the desired power control setpoints for the new call and all existing calls. We will provide necessary and sufficient conditions under which the power control algorithm will have a feasible solution. T ...

> **Keywords**: CDMA, call admission control, cellular networks, power control, wireless networks

11 Simulation and modeling: GrooveSim: a topography-accurate simulator for geographic routing in vehicular networks
Rahul Mangharam, Daniel S. Weller, Daniel D. Stancil, Ragunathan Rajkumar, Jayendra S. Parikh
September 2005 **Proceedings of the 2nd ACM international workshop on Vehicular ad hoc networks VANET '05**
Publisher: ACM Press
Full text available: pdf(2.21 MB)　　Additional Information: full citation, abstract, references, index terms

> Vehicles equipped with wireless communication devices are poised to deliver vital services in the form of safety alerts, traffic congestion probing and on-road commercial applications. Tools to evaluate the performance of vehicular networks are a fundamental necessity. While several traffic simulators have been developed under the Intelligent Transport System initiative, their primary focus has been on modeling and forecasting vehicle traffic flow and congestion from a queuing perspective. In or ...

> **Keywords**: multi-hop wireless networks, vehicular networking modeling and simulation

12 Special issue on Mobile Data Management: TrafficView: traffic data dissemination using car-to-car communication
Tamer Nadeem, Sasan Dashtinezhad, Chunyuan Liao, Liviu Iftode
July 2004 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 8 Issue 3

Publisher: ACM Press

Full text available: ⬛ pdf(471.42 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>

Vehicles are part of people's life in modern society, into which more and more high-tech devices are integrated, and a common platform for inter-vehicle communication is necessary to realize an intelligent transportation system supporting safe driving, dynamic route scheduling, emergency message dissemination, and traffic condition monitoring. TrafficView, which is a part of the e-Road project, defines a framework to disseminate and gather information about the vehicles on the road. With such ...

13 <u>VANET channel characteristics and safety applications: Vehicle-to-vehicle safety messaging in DSRC</u>

Qing Xu, Tony Mak, Jeff Ko, Raja Sengupta

October 2004 **Proceedings of the 1st ACM international workshop on Vehicular ad hoc networks VANET '04**

Publisher: ACM Press

Full text available: ⬛ pdf(183.42 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

This paper studies the design of layer-2 protocols for a vehicle to send safety messages to other vehicles. The target is to send vehicle safety messages with high reliability and low delay. The communication is one-to-many, local, and geo-significant. The vehicular communication network is ad-hoc, highly mobile, and with large numbers of contending nodes. The messages are very short, have a brief useful lifetime, but must be received with high probability. For this environment, this paper explo ...

Keywords: ad-hoc wireless networks, communications (DSRC), dedicated short range, medium access control, vehicle safety systems

14 <u>Design expo case studies: Wi-Fi and handhelds: perfect synergy</u>

Scé Y. Pike, Paul Osborne

April 2004 **CHI '04 extended abstracts on Human factors in computing systems CHI '04**

Publisher: ACM Press

Full text available: ⬛ pdf(591.82 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>index terms</u>

Consumers assume when they make a purchase of a Wi-Fi handheld they will have to spend all day to set up and get it connected. When palmOne Inc. decided to produce a Wi-Fi product, we wanted to create a handheld that users could turn on and go. The goal was to give the users a simple and elegant experience with Wi-Fi, unlike competitive products that were hard to use, and often intimidated the users.palmOne had an opportunity to branch out the product line with Wi-Fi and position the company as ...

Keywords: 802.11, Wi-Fi, broadband, encryption, handhelds, interaction design, mobile, networking, palm, palmOne, pda, product design, security, tungsten, usability research, user experience, user interface design, user research, user-centered design / human-centered design, wireless

15 <u>Protocols: A multi-channel VANET providing concurrent safety and commercial services</u>

Tony K. Mak, Kenneth P. Laberteaux, Raja Sengupta

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In this paper, we propose a medium access control (MAC) protocol to support the multi-channel operation for dedicated short range communication (DSRC). In particular, we focus on the challenge of providing potentially high-bandwidth for non-safety applications provided by roadside infrastructure, without compromising safety communication occurring in a separate channel. In our architecture, when a vehicle approaches a DSRC service hot-spot, it switches from the ad-hoc mode to the coordinated mod ...

Keywords: PCF, broadcast, dedicated short range communication (DSRC), medium access control (MAC), multi-channels, wireless LAN

16 Protocols: VITP: an information transfer protocol for vehicular computing

Marios D. Dikaiakos, Saif Iqbal, Tamer Nadeem, Liviu Iftode

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Recent advances in wireless inter-vehicle communication systems enable the development of Vehicular Ad-Hoc Networks (VANET) and create significant opportunities for the deployment of a wide variety of vehicular applications and services. In this paper, we introduce the Vehicular Information Transfer Protocol (VITP), an application-layer communication protocol, which is designed to support the establishment of a distributed, ad-hoc service infrastructure over VANET. The VITP infrastructure can be ...

Keywords: location-based services, middleware, vehicular computing

17 Risks to the public: Risks to the public in computers and related systems

Peter G. Neumann

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18 A context-aware middleware for applications in mobile Ad Hoc environments

Carl-Fredrik Sørensen, Maomao Wu, Thirunavukkarasu Sivaharan, Gordon S. Blair, Paul Okanda, Adrian Friday, Hector Duran-Limon

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Novel ubiquitous computing applications such as intelligent vehicles, smart buildings, and traffic management require special properties that traditional computing applications do not support, such as context-awareness, massive decentralisation, autonomous behaviour, adaptivity, proactivity, and innate collaboration. This paper presents a new computational model and middleware that reflect support for the required the properties. The sentient object model is proposed by the CORTEX<sup>1&# ...

Keywords: ad hoc wireless network, components, context-awareness, middleware, sentient objects

19 Risks to the public: Risks to the public in computers and related systems

Peter G. Neumann
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Edited by Peter G. Neumann (Risks Forum Moderator and Chairman of the ACM Committee on Computers and Public Policy), plus personal contributions by others, as indicated. Opinions expressed are individual rather than organizational, and all of the usual disclaimers apply. We address problems relating to software, hardware, people, and other circumstances that affect computer systems. To economize on space, we tersify most items and include pointers to items in the online Risks Forum: (R i j) deno ...

20 Crisis management 2: Time-critical information services: analysis and workshop findings on technology, organizational, and policy dimensions to emergency response and related e-governmental services
Thomas A. Horan, Michael Marich, Ben Schooley
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This paper discusses a general framework for understanding and researching end-to-end performance of inter-organizational e-governmental services and reports the findings from an expert workshop held at the National Center for Digital Government. The focus of this paper is on time-critical information services (TCIS) - the medical necessity to deliver emergency services as rapidly as possible coupled with the dependence of these services upon accurate and timely information from multiple organiz ...

Keywords: e-government, emergency medical services and response, performance evaluation, time-critical information services

Results 1 - 20 of 200   Result page: **1** 2 3 4 5 6 7 8 9 10   next